species that do not migrate to any noticeable extent form a comparatively small class. A few examples for each class are given in conclusion:—

CLASSES OF GEOGRAPHICAL VARIATION AND CONSTANCY.

1. Variable Non-Migrants:—*Melitaea didyma*, *Marumba populi*, *Meganephria oxyacanthae*, *Larentia clavaria*, and most Lepidoptera.

2. Constant Non-Migrants (arranged roughly in order of variability, beginning with the more constant and ending with the aberrationally variable species):—*Hoplitis milhauseri*, F., *Habrosyne derasa*, L., *Myinodes interpunctaria*, Schiff., *Aspilates ochrearia*, Ross., *Acronicta rumicis*, L., *Harmodia bicruris* = *capsincola*, *Mesotype virgata*, Hufn., *Phragmatoecia castaneae*, Hbn., *Euxoa temera*, Hbn.

3. Variable Migrants:—*Vanessa cardui*, *Celerio lineata*.

4. Constant Migrants (arranged roughly in order of variability, beginning with the more constant and ending with the aberrationally variable species):—*Lampides boeticus*, *Macroglossum stellatarum*, *Deilephila nerii*, *Teracolus fausta*, *Laphygma exigua*, *Cidaria obstipata*, *Sideridis vitellina*, *Sideridis unipuncta*, *Colias croceus*, *Rhodometra sacraria*, *Nomophila noctuella*, *Triphaena pronuba*.

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NOTES ON SOME SOUTH AFRICAN LEPIDOPTERA.

By J. Sneyd Taylor, M.A., D.I.C., F.R.E.S.

The following notes are a continuation of those published under the same title in volume iii of the *Journal of the Entomological Society of Southern Africa* (1940). Except where otherwise stated, the material dealt with was obtained at Graaff-Reinet, C.P. The writer is indebted to Mr G. van Son, of the Transvaal Museum, Pretoria, for naming the majority of the species, and to the Division of Botany and Plant Pathology for plant determinations.

Sphingidae.—*Acherontia atropos*, L. (Death's Head Moth).—A larva was obtained near Middelburg, C.P., feeding upon the foliage of *Solanum jasminoides* (potato vine).

Theretra capensis, L.—The adult is commonly seen at light, and the larva has been found feeding upon the leaves of grape vines.

Choerocampa celerio, L.—The larva of this species has also been found feeding upon grape-vine foliage.

LYMANTRIIDAE.—*Bracharoa dregei*, H.-S.—The adult has been taken at light, while the larva has been obtained feeding upon the leaves of geranium in gardens. The cocoon is formed among the leaves of the food-plant.

LASIOCAMPIDAE.—*Gonometa postica*, Walker.—The larva feeds upon the foliage of *Acacia* sp., and the cocoon is formed on the tree.

ARCTIIDAE.—*Diacrisia eugraphica*, Walker.—The adult is common at light, and the larva has been found feeding upon the leaves of *Thunbergia alata*, var. *auranticoa* (" Black-eyed Susan "), a garden creeper.

NOCTUIDAE.—*Tathorynchus vinctalis*, Walker.—The larva has been obtained feeding upon lucerne, and the cocoon was formed among leaves and debris at the base of the food-plant.

Diaphone eumela, Cram.—The larva of this species feeds upon the buds, flowers and fruit, and, failing these, upon the leaves of *Urginea altissima*, a common veldt plant, popularly known as " slangkop." The pupal period may occupy a long period of time, possibly on account of drought conditions. The shortest pupal period obtained was 79 days, while others were eight, fourteen, sixteen and eighteen months (543 days) in duration. Recently (February 1942) several cocoons, formed in the soil in November 1940, were opened, and found to contain living pupae in various stages of development, some being still far from mature. Two species of *Tachinidae* were reared from the larva.

PYRALIDAE.—*Mecyna gilvata*, F.—The larva has been found feeding upon the shoots and twigs of a yellow-flowered broom forming a hedge in a garden in Jansenville, C.P. It was present in large numbers, and had almost destroyed the hedge. Cocoons were found under stones, and in wall crevices nearby.

Terastia meticulosalis, Guen.—Cocoons found behind shutters on a house in Church Street, Graaff-Reinet, and under the bark of a Eucalyptus tree at the same place, proved to belong to this species. The original larvae probably came from the tree *Erythrina caffer* (Kaffir-boom), which, Mr van Son informs me, is the usual food-plant, a specimen of which grows on the other side of the street. A careful search was made of shutters and other likely places on this, the east, side of the street, but no cocoons were found. The street is a wide and busy one, and it seems curious that the larvae should seek places for pupation so far afield.

[The larva of *Terastia meticulosalis* is a borer in the young shoots of *Erythrina*; normally it pupates inside its tunnel in a cocoon spun there, usually below the frass accumulated at the apical end of the attacked shoot, which by that time is in a rotting condition. In the case of the cocoons found behind shutters and under *Eucalyptus* bark by Mr Sneyd Taylor, it seems likely that the attacked *Erythrina* shoots had become detached (as by trimming the tree or by being torn off by passing traffic or by wind) and, under such unnatural conditions, the larvae had pupated as described by him.—T. BAINBRIGGE FLETCHER.]

Trachypteryx megella, Zell.—Tough, tubular constructions, about one-and-a-half inches in length, entwined among the thorns of bushes

of *Acacia* sp., were found to contain larvae which belonged to this species. Pupation took place in the tubes.

Loxostege frustalis, Zell.—In *Farming in South Africa*, Vol. xv, No. 176, November 1940, under the title of " The Karroo Caterpillar," the writer gave an account of this species which, from time to time, is so destructive to Karroo-bush (*Pentzia incana*), the most important fodder-plant of the Karroo. In this account, mention was made of the long larval diapause, and, since its publication, more data as to the duration of the diapause have been accumulated. From larvae which entered the soil in November 1939, adults continued to be obtained until January 1941, and the period in the cocoon of forty-six individuals varied from 314 to 424 days, or, approximately, from 10½ to 13⅓ months. The remainder of the cocoons, formed during November 1939, and from which nothing had emerged, were opened in June 1941, and three of them were found to contain living larvae, some 581 days, or over 19 months; since the construction of their cocoons. The larva of one cocoon, opened 323 days after its formation, made an abortive attempt to construct a fresh cocoon. Another, the cocoon of which was opened after 218 days, pupated 4 to 5 months later, while the adult emerged on the 365th day. Several others, the cocoons of which were opened in June 1940, pupated in the following September and October, the adults emerging towards the end of the latter month. At least one of the larval parasites of *Loxostege frustalis*, a species of *Macrocentrus* (*Braconidae*), has apparently adapted itself to the long diapause of its host. Several of the adult parasites were obtained after periods varying from 382 to 399 days since the host larvae had formed their cocoons in the soil.

The material from which the above data were obtained was kept under extremely dry conditions.

Loxostege frustalis, although present, did not occur in serious numbers in Graaff-Reinet during the summer of 1940-41. The same applies to the summer of 1941-42, up to the time of writing (February). The few flights of moths, which were observed, were small, and were not followed by heavy or widespread infestations. Both summers were dry, on the whole, and there seems little doubt that climatic conditions play an important part in the incidence of this insect. Dry weather is certainly not favourable to it.

GREEN PUPAE.

By An Old Moth-Hunter.

On the 27th August, many years ago, I found a green chrysalis. It was suspended in a silken cradle between the leaves of an ash, on a little shoot that rose from the trunk not more than two feet above ground. Having already, at that early age, noted that most chrysalids are green for a few hours after the larval skin has been cast off, I added, in my diary recording the discovery, " evidently just pupated." The following day, however, my pupa was still green, a light grassy green, and so it remained until 13th September, when a male " Dusky Thorn " emerged from it.